



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/532,510	03/21/2000	Brian Joseph	ALA-106	6796

23494 7590 04/23/2004

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER

LE, UYEN T

ART UNIT	PAPER NUMBER
----------	--------------

2171

19

DATE MAILED: 04/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/532,510

Applicant(s)

JOSEPH, BRIAN

Examiner

Uyen T. Le

Art Unit

2171

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6-12,14-16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6-12,14-16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's amendment to claim 16 is acknowledged. Consequently, rejection to claim 16 under 35 U.S.C. 112, second paragraph is withdrawn.
2. Applicant's arguments regarding Dent have been fully considered but they are not persuasive. Applicant merely requests the examiner to withdraw the rejection of all pending claims without specifically showing where the examiner errs in interpreting the Dent reference.

Regarding claim 1, Applicant argues that Dent does not teach nor suggest the binary operator, the multiplexer nor the storage element coupled as claimed. In response, the examiner disagrees. The examiner specifically pointed out in the Office Action mailed 3 September 2003 that the claimed binary operator merely generates a binary decision representative of a local address, thus is met by element 110 which traces back to the address of the input selected to be outputted. The claimed multiplexer coupled to the binary operator is met by element 108. The claimed storage element has to be present for the system of Dent to temporarily store the results of the computation at each stage to preserve the data value for the next stage during the computation process.

Regarding claim 12, applicant merely repeats the argument that Dent does not teach nor suggest the binary operator, the multiplexer nor the storage element as is required by claim 12. In response, the examiner disagrees. The examiner specifically

pointed out in the Office Action mailed 3 September 2003 that the claimed binary operator and multiplexer are met by elements 110, 108 shown in Figure 2A. The claimed storage element has to be present for the system of Dent to temporarily store the results of the computation at each stage to preserve the data value for the next stage during the computation process.

Regarding claim 16, applicant again repeats the argument that Dent does not teach nor suggest a multiplexer nor a storage element as recited in claim 16. In response, the examiner disagrees. The examiner specifically pointed out in the Office Action mailed 3 September 2003 that the claimed multiplexer is met by element 108 shown in Figure 2A. The claimed storage has to be present for the method of Dent to perform the computations since all inputs and outputs have to be stored at least temporarily at each stage for the computerized method in multiple stages of Dent to perform.

Regarding claims 6, 7, 10, 11, applicant argues that it would be necessary to make modifications not taught in the prior art. In response, it is notoriously well known in the art that existing users systems have different configurations in arranging the order of the bits. The examiner pointed out in the Office Action mailed 3 September 2003 that although Dent does not specifically show which bits represent the partial address or in which order the address bits and the specific value bits are, since users' systems have different configurations, it would have been obvious to one of ordinary skill in the art to include the claimed features depending on users' system configurations.

Regarding claims 3, 4, 8, 9, 14, 15, 18-20, applicant presents no further argument except they should be allowable because they at least depend from allowable claims.

For all the reasons stated above, rejection to all pending claims is maintained using the reference of record and hereby repeated.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 4, 8, 9, 12, 14-16, 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Dent et al (US 5,187,675) of record.

Regarding claim 1, Dent discloses a system for locating a specific value (see the abstract, Figures 1-3). Note the plurality of decision units grouped in successive computation stages 1-3 in Figure 1. The claimed N data values merely read on input V0 through V7 shown in Figure 1. Each data value is clearly a plurality of bits wide. The claimed decision units read on the combination of elements 108 and 110. Each decision unit clearly receives a pair of input values having a data value (input A, input B in Figure 2A) and a partial address (A traceback, B traceback in Figure 2A). The claimed “each decision unit generates a value...contains the specific value” is met when Dent shows that stage 3 contains Vmax. The claimed binary operator merely generates a binary decision representative of a local address, thus is met by element 110 which traces

back to the address of the input selected to be outputted. The claimed multiplexer coupled to the binary operator is met by element 108. The claimed storage element has to be present for the system of Dent to temporarily store the results of the computation at each stage to preserve the data value for the next stage during the computation process. The claimed "binary decision which is added to the partial address of the selected data value" is clearly shown in element 110 of Figure 2B.

Regarding claim 3, Dent shows that the system selects the minimum value (see column 3, lines 55-57).

Regarding claim 4, Dent shows that the binary operator selects the maximum value of the pair of data values contained in the pair of input values since the output of stage 3 is V_{max} (see Figure 1).

Regarding claims 8, 9, Dent discloses that the number of computation stages K is related to the size N by the formula $K = \log_2 N$ and the number of decision units at a computation stage i is equal to $N/2^i$ wherein $1 \leq i \leq K$ when Dent shows that each comparator at each stage takes 2 inputs and produces one output as shown in Figure 1.

Regarding claim 12, Dent discloses an apparatus for obtaining information on a specific value within a pair of inputs (see Figure 1). The claimed binary operator and multiplexer are met by elements 110, 108 shown in Figure 2A. The claimed storage element has to be present for the system of Dent to temporarily store the results of the computation at each stage to preserve the data value for the next stage during the computation process. The input data values are clearly compared and the output is clearly representative of a local address of the specific value (see Figure 3). Dent

discloses that the input value also contains a partial address when Dent shows the traceback data (see Figures 2A, 2B, 3).

Regarding claim 14, teaches that the binary operator is a minimum operator (see column 3, lines 55-57).

Regarding claim 15, Dent discloses that the binary operator is a maximum operator when Dent shows comparators 11, 12, 13 outputting Vmax.

Regarding claim 16, note that the claimed W bits of data value do not seem to play any role in applicant's method. Dent discloses a method of determining an address for a result of a binary operation when Dent shows that the output of the final stage is Vmax (see the abstract, Figure 1) and the traceback data represent the address of the selected value (see Figures 2A, 2B, 3). Dent discloses that each input value includes a partial address when Dent shows A traceback and B traceback (see Figure 2A). The claimed step (c) has to be present for the method of Dent to perform the computations since all inputs and outputs have to be stored at least temporarily at each stage for the computerized method in multiple stages of Dent to perform.

Regarding claim 18, clearly the computation stage 3 of Dent contains the value of the result of the binary operation and its address within the array of values.

Regarding claim 19, Dent clearly teaches a minimum finding operation (see column 3, lines 55-57).

Regarding claim 20, Dent discloses that the binary operation is a maximum finding operation when Dent shows that the result is Vmax.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6, 7, 10, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dent et al (US 5,187,675) of record.

Regarding claims 6, 7, although Dent does not specifically show which bits represent the partial address, since users' systems have different configuration, it would have been obvious to one of ordinary skill in the art to include the claimed features depending on users' system configuration.

Regarding claims 10, 11, although Dent does not specifically show the order of the address bits and the specific value bits, since users' systems have different configuration, it would have been obvious to one of ordinary skill in the art to include the claimed features depending on users' system configuration.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Uyen T. Le whose telephone number is 703-305-4134. The examiner can normally be reached on M-F 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 703-308-1436. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

21 April 2004



UYEN LE
PRIMARY EXAMINER